

V. *Account of the Difference of Structure in the Flowers of six Species of Passiflora.* By Mr. James Sowerby, A. L. S.

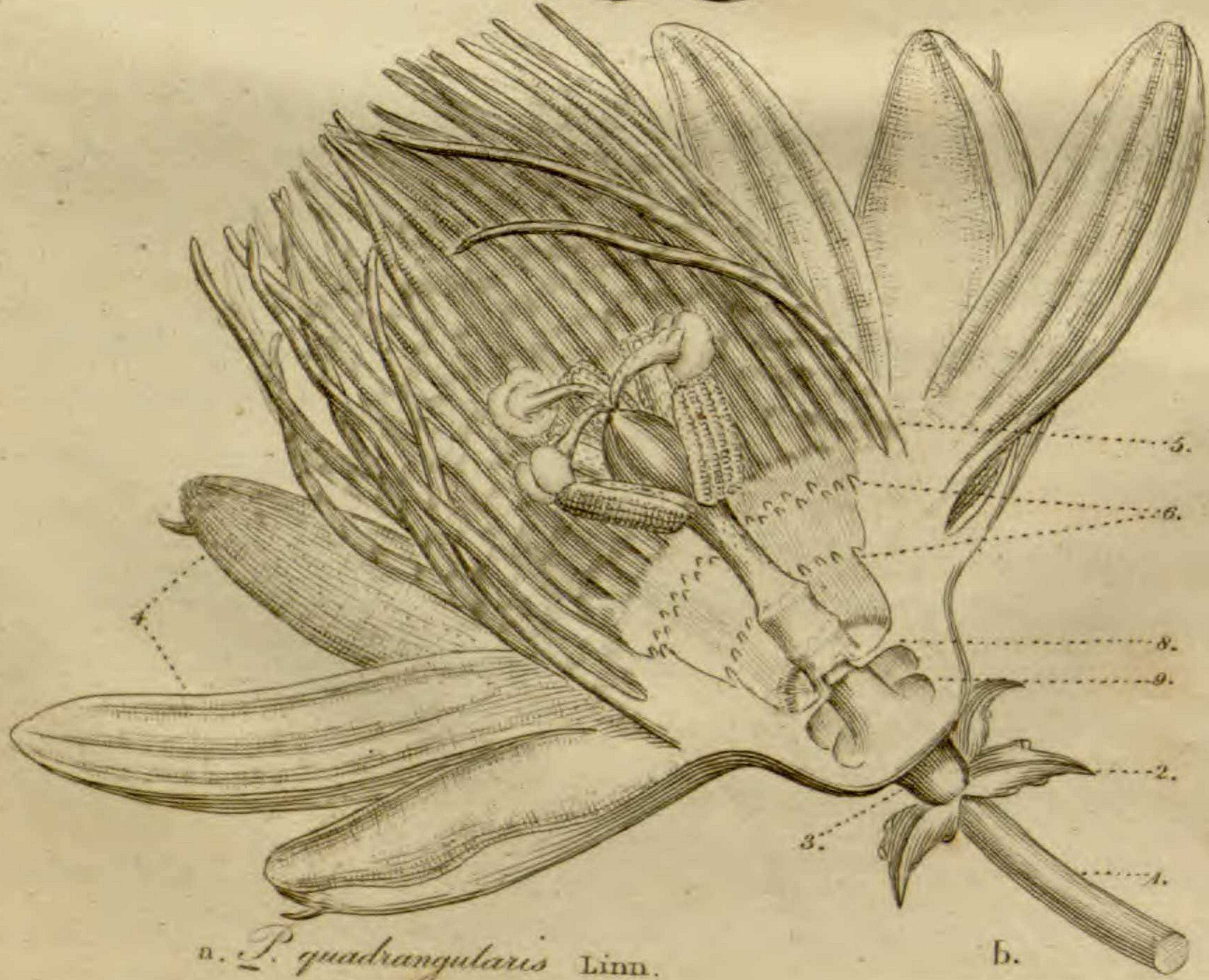
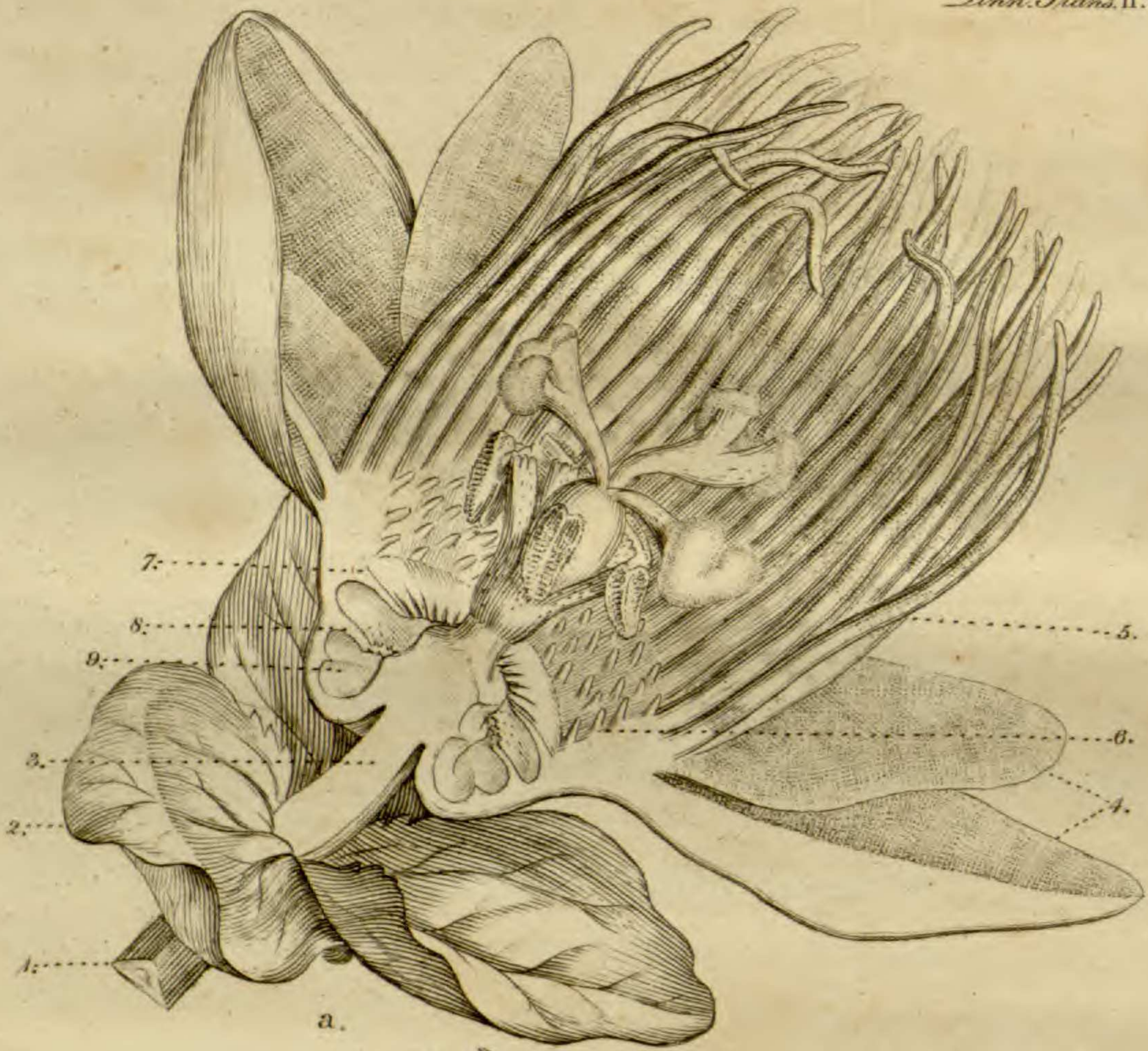
Read Jan. 5, 1790.

CONSIDERING the *Passifloras* in general as one of the most beautiful tribes of plants yet known, I conceived a desire to collect drawings of them; but having been diverted from my intention by different and necessary pursuits, I have made but trifling progress. Nevertheless, from a partiality in their favour on contemplating so much variety in one flower, and the wonderful, and doubtless useful, organs of which some of them are composed, I have been led to investigate with some care such as have fallen in my way. It must be owned I had long passed over a principal beauty in the *Passiflora cærulea*, viz. the double row of horizontal, threadlike, radiated nectaries, if I may so call them. If the parts to which I allude be properly the nectary, surely many flowers in this genus have that organ in greater abundance than any other flower, as well as in greater variety: hence I was induced to pay attention to the nectaries in particular, and was much entertained with the distinguishing differences in the species. The larger species, as far as I have seen, have constantly two rows of principal radiated nectaries; the smaller commonly but one, and but half the number of divisions in the corolla, viz. only five, whereas the others have from ten to twelve. The repository for the honey also differs much in different species, and is a part very

distinct from those above mentioned, which perhaps may serve as conductors, or help to screen or secure that juice. Their particular uses remain, as far as I know, to be investigated, and probably may be among the arcana of nature. There is also another sort which serves as an operculum under various forms, sometimes plaited, or plaited and fringed, besides a kind of imperfect rays in different situations and shapes, which have not yet been noticed, and might afford good specific distinctions. Even Professor Jacquin has left his *P. minima* undetermined for want of the fructification, which I presume might have perfectly settled it; for I have a specimen (which I cannot get positively determined) that resembles it in general appearance, with a plaited ruffle between the germen and the filaments, which I have not yet seen in any other *Passiflora*; but it cannot from the figure be known whether his *minima* has this ruffle or not.

Perhaps I should not have been thus particular, if there had not been so much difficulty in finding a character to distinguish the *quadrangularis* from the *alata*. It is well known that some good gardeners and botanists did not know the differences, and even thought them one and the same plant. They are certainly very much alike as to general appearance before blossoming, excepting the leaves in the *quadrangularis*, which have generally twice as many side veins, by which it is distinguished in the Hortus Kewensis; yet who that has not seen both can with certainty determine them? The flower-bud even at a distance will distinguish them pretty easily, the *quadrangularis* being rather compressed and never oblong, as that of the *alata* always is; the former being also destitute of awns: upon a nearer inspection the difference is more obvious, and I will endeavour to make it clearly understood.

I was once told that the *quadrangularis* had the narrowest leaves. I have seen it in different plants and places with narrower and
broader



a. *P. quadrangularis* Linn.

b. — *alata*.

broader leaves than the *alata*. In general, the glands on the petioles are said to be six in the *quadrangularis*, which is sometimes true; but it is not constant, and I have seen six in the *alata*, seemingly by chance.

The peduncle affords a most certain distinction, with which I therefore begin my description of the characters of these and two or three others: in the mean time it may be observed, that the colour of the plant will not distinguish them; nor can the colour of their flowers, though they differ in this respect, be allowed to form a decisive distinction.

Passiflora quadrangularis. Linn. TAB. 3. fig. a.

The *quadrangularis* is perhaps the largest and most beautiful of the *Passifloras*, apparently containing the greatest number of parts, which I will endeavour, with the help of a drawn dissection, to describe under the following heads:

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| 1. Peduncle, or | General footstalk of the fructification. |
| 2. Involucrum, or | Calyx. |
| 3. Pedicle, or | Flower stalk. |
| 4. Petals, | Or rather segments of the corolla. |
| 5. Principal rays, | Radiated nectaries. |
| 6. Imperfect rays, | Small, commonly irregular, protuberances. |
| 7. Imperfect operculum, | Cover to an anti-nectary. |
| 8. Operculum, | ————— the nectary. |
| 9. Nectary, | Which contains the honey. |
| 1. Peduncle | Triangular. |
| 2. Involucrum | Of three large, concave, oval leaves, serrated towards the base. |
| | 3. Pedicle |

3. Pedicle Cylindrical, rather more slender at the infertion into the concave base of the flower.
4. Petals Ten or twelve, the outer five or six thick and somewhat spongy, a little concave, broad, ending obtufely and without awns, the inner five or six thinner and fmaller.
5. Principal rays Two rows clofe to each other, alike, awl-shaped and ftanding perpendicularly, or nearly at right angles with the petals, which they exceed in length.
6. Imperfect rays Four or five rows of irregularly-ftuated protuberances, nearly conical, very fmall, on an inclined or defcending plane.
7. Imperfect operculum* Horizontal, partly divided into rays, which by their tips reft on a thickened part of the column fupporting the fructification.
8. Operculum Horizontal and flattifh at the end, which is edged with two rows of little imperfect or irregular teeth, refting on the column.
9. Nectary Round the concave bafe of the corolla, with a protuberating half partition on the fide fartheft from the column.

* This feems one part more than in any other *Passiflora*.

Passiflora alata, *Ait. Hort. Kew. V. 3. 306, TAB. 3. fig. b.*

is very like the former at first sight: the open flower has also a general resemblance, till we come to examine and make comparison, when I presume we shall find sufficient distinctions.

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| 1. Peduncle | Cylindrical. |
| 2. Involucrum | Three divisions, small, lanceolate, with glandular serratures. |
| 3. Pedicle | Thickest at the insertion into the convex base of the flower. |
| 4. Petals | The outer five or six oblong with an awn, the inner longer. |
| 5. Principal rays | The outer thinnest and shortest. |
| 6. Imperfect rays | A double row; below and distinct from them, a single row. |
| 7. Imperfect operculum | Wanting. |
| 8. Operculum | Partly horizontal and partly turning up to the column, then folding backward down again embraces the column*. |
| 9. Nectary | Round the column †, confined by the base of the flower. |

* This is so connected with the column that it appears inseparable, but is not joined to it.

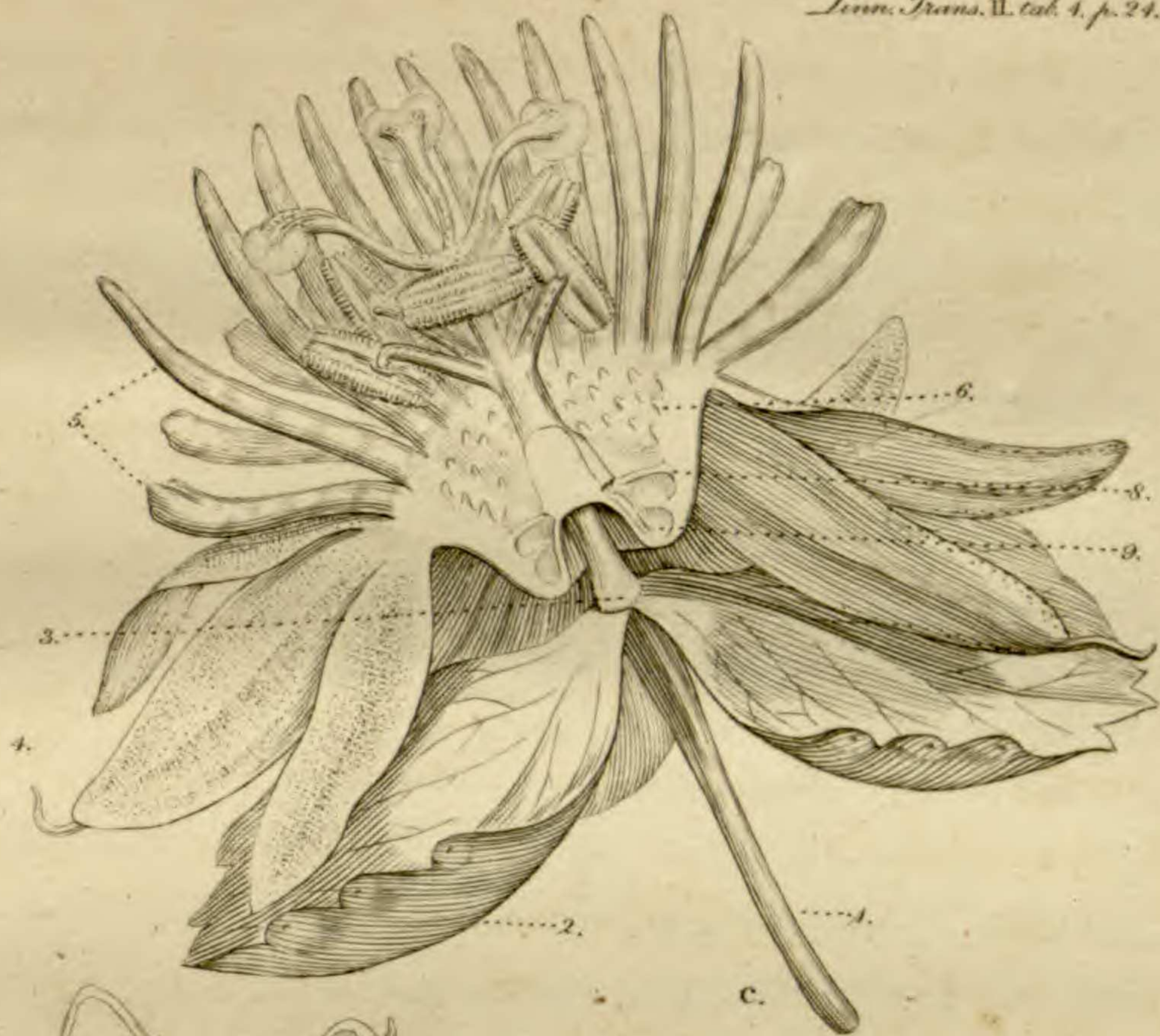
† The column comes to the bottom of the nectary, which is not the case in the *quadrangularis*.

Passiflora laurifolia. Linn. TAB. 4. fig. c.

This perhaps is sufficiently known, and distinguished by its general appearance; yet it is so remarkable in many particulars, that I could not leave it unnoticed: its beauty also seems to demand attention.

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| 1. Peduncle | The lower part cylindrical, becoming triangular at the insertion of the involucre. |
| 2. Involucrum | Three large, concave, obovate leaves, ferrated towards their extremities with large glands, ending in two or three simple ferratures. |
| 3. Pedicle | Almost conical, narrowing into the deep base of the flower. |
| 4. Petals | Six outer lanceolate with an awn, the inner smaller. |
| 5. Principal rays | Two sets, the outer shortest, spreading diagonally, base cylindrical, apex abrupt and irregular, flattish; the inner nearer upright, some a little clavated, others bluntly awl-shaped*. |
| 6. Imperfect rays | Two or three rows irregularly situated. |
| 7. Imperfect operculum | None. |
| 8. Operculum | An horizontal plane, touching the base of the column, which confines it by spreading a little over the edge. |
| 9. Nectary | Below the base of the column, round the concave base of the flower. |

* This shews the double row of nectariferous rays plainly.



c *P. laurifolia* Linn.
d — *carulea* ejusd.

Passiflora cærulea, Linn. TAB. 4, fig. d.

however common, is very curious in its construction, differing in many particulars from all that I have seen. This beautiful flower is generally esteemed; and, if we examine the parts of which it is composed, it will surely add to our admiration.

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| 1. Peduncle | Cylindrical, swelling a little at the base. |
| 2. Involucrum | Three ovate entire leaves, a little concave. |
| 3. Pedicle | Cylindrical, thickening at each end. |
| 4. Petals | The outer five or six a little fleshy, oblong, rather obtuse; inner narrower and thinner, about the same length. |
| 5. Principal rays | Two rows, horizontal, threadlike, a little pointed, nearly alike, under each other. |
| 6. Imperfect rays | One regular row, with roundish heads, on little footstalks, standing erect on an horizontal elevated plane at the base of the principal rays: within these imperfect rays are a very different set, entire at the insertion, divided into threads about half way down, and inclining against the column. On the under side is a protuberance which catches the margin of the operculum. |
| 7. Imperfect operculum | None. |
| 8. Operculum | Spreading from the column under the aforesaid rays. |
| 9. Nectary | Round the base of the column, with a thick protuberance* round the side of the lower part of the flower, on which rests the operculum, and which almost divides it into two cells. |

* This protuberance seems to form an antichamber to the nectary.

Passiflora lunulata. *Smith, Ic. Pict.* t. I. TAB. 5, fig. e.

This is a much smaller flower than those already described, and is remarkably different in having but one row of principal rays, very different also in their form, which is quadrangular. The operculum or cover of the nectary is very different, being curiously plaited; and this is a common case with the still smaller ones. But I proceed to the different parts, continuing the former order; and as it has fewer in number, we shall of course find which are wanting, as well as the variation in those which it possesses.

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| 1. Peduncle | Cylindrical. |
| 2. Involucrum | Three very small, lanceolate, and entire leaves. |
| 3. Pedicle | Cylindrical, thickest at the insertion into the flattish base of the flower. |
| 4. Petals | Generally ten, the outer ovate, rather lanced, the inner shorter. |
| 5. Principal rays | One row, spreading, quadrangular, and thinnest at each end. |
| 6. Imperfect rays | One row, regular and clubbed. |
| 7. Imperfect operculum | None. |
| 8. Operculum | Regular, and plaited. |
| 9. Nectary | Round the bottom of the flower nearest the outer part, confined by a protuberating or thickened bank, arising from the base of the flower, gradually descending round the column, and making a trench about it. |